Appendix

1. A method for modifying the carbohydrate composition of a plant or plant organ, wherein said method comprises growing a transformed transgenic plant containing a vector or recombinant expression construct encoding a microbial endo-glucanase operably linked to a regulatory or leader sequence under conditions wherein said glucanase is expressed and the carbohydrate composition of said plant or plant organ is modified by the expressed glucanase and said regulatory sequence is selected from the group consisting of

a) a regulatory sequence that directs expression of said enzyme-encoding nucleotide sequence at a selected stage of development or maturity of the transgenic plant or plant organ;

b) a regulatory sequence comprising a 35S CaMV promoter; and

c) a regulatory sequence directs tissue-specific expression of said enzyme-encoding nucleotide sequence in a plant; and wherein said leader sequence targets the expressed endo-glucanase to the carbohydrate material contained in a cellular compartment or organelle.

27. The method of claim 1, wherein said endo-glucanase is an endo-1,3-β-glucanase.

28. The method of claim 1, wherein said endo-glucanase is an endo-1,4-β-glucanase.

36. The method of claim 1, wherein said regulatory sequence directs tissue-specific expression of said DNA expression construct or vector.

39. The method of claim 1, wherein said DNA expression cassette or vector contain a nucleotide sequence encoding a leader sequence that is operably linked to said enzyme, said leader sequence being capable of targeting the enzyme to a cellular compartment or organelle.

42. The method of claim 1, wherein said transgenic plant contains at least one expression cassette which contains a nucleotide sequence encoding a second microbial enzyme that acts upon degradation products resulting from the action of the first enzyme.

48. The method of claim 42, wherein the second enzyme is selected from the group consisting of a maltase, an α-dextrinase, an α-1,6-glucosidase, a glucose isomerase and an invertase.

51. The method of claim 1, further characterized in that said transgenic plant is selected from the group consisting of tomato, potato, corn, cassava, carrot, lettuce, strawberry and tobacco.

54. A recombinant DNA expression cassette comprising a regulatory sequence operably linked to a nucleotide sequence encoding a microbial glucanase which regulatory sequence is selected from the group consisting of

a) a regulatory sequence that directs expression of said enzyme-encoding nucleotide sequence at a selected stage of development or maturity of the transgenic plant or plant organ;

b) a regulatory sequence comprising a 35S CaMV promoter; and

c) a regulatory sequence directs tissue-specific expression of said enzyme-encoding nucleotide sequence in a plant.

55. A vector comprising an expression cassette according to claim 54.

56. A stably transformed, transgenic plant, characterized in that said plant contains a stably integrated gene encoding a microbial endo-glucanase resulting from the introduction of an expression cassette according to claim 54.

57. A bacterial strain characterized in that said bacterial strain contains a vector according to claim 55.

58. A stably transformed, transgenic plant or plant organ, characterized in that said plant or plant organ contains a endo-glucanase modified carbohydrate composition contained in a cellular compartment or organelle, said plant or plant organ being made by the method of claim 1.